C. T. PHILLIPS.

Smut Mill.

No. 83,658. Patented Nov. 3, 1868.

Fig. 1.

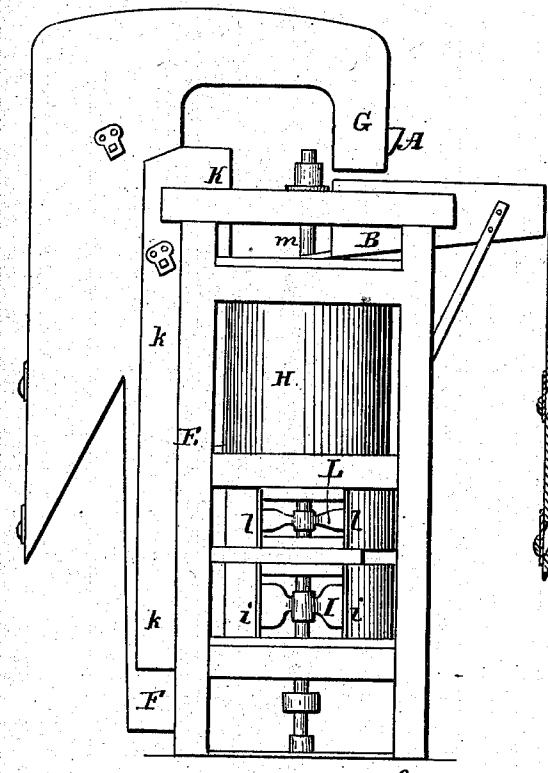


Fig. 2.

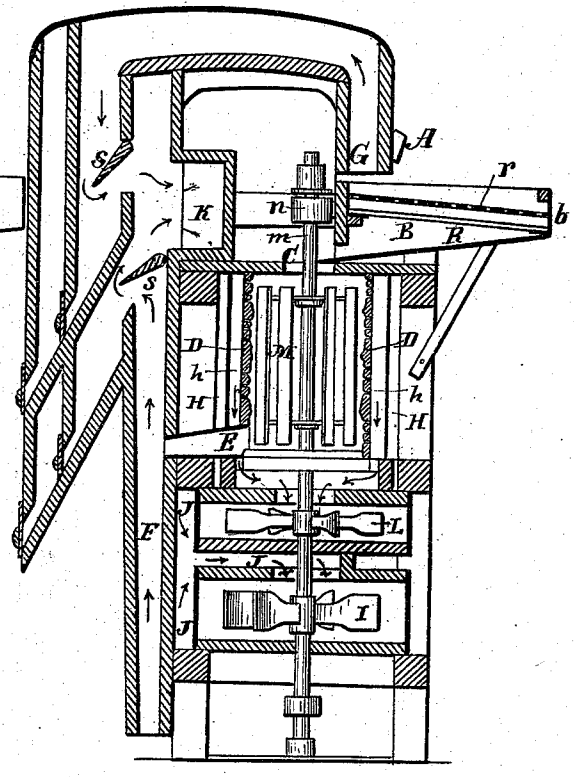


Fig. 3.

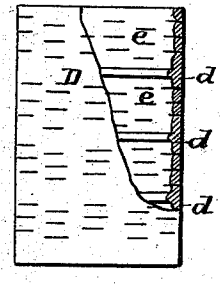
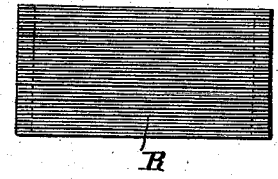


Fig. 4.



Witnesses:

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Attys

United States Patent Office.

C. T. PHILLIPS, OF JORDAN, NEW YORK.

Letters Patent No. 83,658, *dated November* 3, 1868.

IMPROVED SMUT-MILL.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, C. T. PHILLIPS, of Jordan, in the county of Onondaga, and State of New York, have invented a new and improved Smut-Mill; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my invention, and

Figure 2 is a central vertical section.

Figures 3 and 4 are detail views.

Similar letters of reference indicate like parts in all the figures.

The grain is fed into the small feed-spout A, and falls through a vibrating screen, B, and from thence is fed through a central opening in the cap C, fig. 2, to the scouring-cylinder D. On reaching the bottom of the scouring-cylinder, the grain passes out of the spout E into the vertical blast-spout F, and falls to the ground.

The other end, G, of the blast-spout takes a portion of the dirt from the grain as it falls from the feed A to the screen B. The screen B then removes a further portion of the impurities, and the grain falls into the scouring-cylinder D, where it is scoured, and the dust drawn through the slots or perforations of the scouring-cylinder into an annular chamber, *h*, which is formed by the shell H. The grain then passes into the vertical spout F, and in falling to the ground encounters a strong upward current of air in F, which removes the last of the dirt. The main blast of air, which passes inward at both terminations, F and G, of the blast-spout, is produced by the large suction-blast wheel I; this wheel draws air from the chamber J, fig. 2, and this chamber connects with a chamber, K, by legs or side spouts *k*, fig. 1, so that the wheel I draws its air from the main spouts midway between the two terminations F G. This wheel, I, expels its air from the discharge *i*, fig. 1.

The suction through the slotted sides of the scouring-cylinder D is kept up by a separate blast-wheel, L, the supply of air for this wheel flowing in through the cap at C, fig. 2, and is expelled at discharge *l*, fig. 1. The scouring-wheel M, fig. 2, and both of the blast-wheels L I, are secured all to the same shaft *m*. By using an intermediate or separate blast, L, between the suction-spouts G and F, the scouring is more thoroughly done, and the grain is not broken by the scouring-wheel M, as the blast L keeps the grain well up to the walls of the scouring-cylinder; and the germs of wheat are also saved for feed, as the blast-wheel throws them out with the fine dust, and they are readily saved, (by a return current or trap-arrangement, similar to that shown by the valves S,) instead of being blown away, as usual.

The screen B is vibrated by a cam on the shaft *m*, which rotates in a collar, *n*, that is rigidly secured to the screen B. The upper riddle *r* of the screen, is of ordinary construction, being of perforated sheet-metal; but I construct the lower riddle R by a series of round rods arranged parallel to each other, with a narrow space between them, as shown by fig. 4. The bars are secured to a cross-plate underneath, at each end, and there are no cross-bars or obstructions on the upper face of the riddle. This construction of riddle gives a much better result than the ordinary construction. The kernels of grain, on falling upon it, arrange themselves longitudinally with the rods, and then fall through the narrow spaces of the riddle; and in this manner it is necessary to have the openings only equal to the width of the kernels, and all rat-dirt, &c., is separated from the grain effectually. The rods of this riddle, B, being round, grooves or channels are formed between them, in which the kernels of grain are turned longitudinally, to fall through the narrow spaces of the riddle. And the efficiency of the riddle depends wholly on such channels for turning the kernels preparatory to their falling through said narrow spaces, as, if the same spaces are made in a flat plate of metal, the grain will not pass through. The screen B discharges its dirt at *b*.

The inner surface of the scouring-cylinder is indented at each slot, as shown by *e* in fig. 3. These indentations delay the fall of the grain down the walls of the cylinder. And said inner surface is also provided with ribs or narrow shelves *d*, which further delay the passage of the grain, and keep it longer under the action of the scouring-beaters M. I have found that the shelves or ribs *d*, used in connection with the indented slots or perforations, give a much better result than ribs and slots not indented, or with indented slots without ribs, neither of which I claim, as both have been used before.

I am also aware that the several devices herein described, and mainly, also, their combination, are not new, and I do not therefore claim any of said devices separately, nor their combination; but

What I do claim, is—

The arrangement, herein described, of the scouring-cylinder D *d e*, annular chamber *h*, blast-wheels L I, screen B R *r*, chambers J K, conduits *k*, and spouts F G, all operated as shown, and for the purpose specified.

The above specification of my invention signed by me, this 6th day of August, 1868.

C. T. PHILLIPS.

Witnesses:

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F. A. MORLEY.